

Appl. No. 10/091/983  
Amdt. dated 03/28/2005  
Reply to Office action of 03/07/2005

### REMARKS/ARGUMENTS

Reconsideration is requested of all rejections based on 35 U.S.C. 103:

Examiner is thanked for his ongoing response in which he has argued as follows:

(1) Kraft's anneal takes place in the same chamber as that in which he performed his plasma nitridation process. Examiner bases his argument on the fact that Kraft that does not explicitly mention changing chambers.

**Our response:** It is invalid to argue that the absence of a statement describing a given action implies that its opposite is performed. In this particular instance there is good reason to believe that a different chamber was used because that is the normal practice of the art. In a manufacturing environment, it is normal to anneal multiple wafers at a time (unless a rapid thermal anneal is involved which is not the case here). The presence of multiple electrodes in a nitridation chamber make it unsuitable for simultaneous processing of many wafers at the same time.

(2) Kraft's anneal takes place in the same gas as that which was used to perform the plasma nitridation process. Examiner bases his argument on the fact that Kraft that does not explicitly mention purging the nitridation chamber and then using a different gas.

**Our response:** As already noted, it is invalid to argue that the absence of a

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statement describing a given action implies that its opposite is performed. Purging the gas from a chamber after concluding a given sub-process before proceeding to the next step, is standard practice. To do otherwise would be to expose the new sub-process to possible contamination from leftover byproducts of the preceding process.

We also reiterate that Kraft does not teach that a post nitridation anneal is necessary for his invention to work, mentioning it only as a possible option. This fact alone invalidates Examiner's conclusion that Kraft uses the same gas for both plasma nitridation and annealing.

(3) Kraft's annealing gas consists of a mixture of nitrogen and oxygen, containing between about 10 and 30 volume percent oxygen (as specified in our claims 5 and 13). Examiner bases his argument on the fact that Kraft lists, among the possible components of his nitridation gas, NO and  $N_2O$ , which are known to dissociate.

**Our response:** Virtually all compounds dissociate to some extent. It is therefore incumbent upon Examiner to provide data (dissociation constants at the annealing temperature) that demonstrate that either of these gases dissociates into a mixture of between about 10 and 30 volume percent oxygen. Otherwise his argument is sheer speculation.

Were Examiner to assert that any amount of dissociation is sufficient to prove his point he would be arguing that carbon dioxide is an oxidizing gas, since it is known to dissociate into carbon monoxide and oxygen, or that pure water is alkaline since it is known to dissociate into hydronium and hydroxyl ions.

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In summary, Examiner's rejection of our claims is based on three unfounded assumptions, all of which need to be valid if he is to make his case: (1) Kraft's anneal takes place in the same chamber as that in which he performed his plasma nitridation process, (2) Kraft's anneal takes place in the same gas as that which was used to perform the plasma nitridation process, and (3) Kraft's (optional) annealing gas consists of a mixture of nitrogen and oxygen, containing between about 10 and 30 volume percent oxygen.

We have provided detailed reasons why we believe all three of the above assumptions are invalid. Accordingly, we respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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